DOCUMENT RESUME

ED 109 456 CE 004 307

AUTHOR Deleon, Asher, Ed.
TITLE Preparation of Problem Oriented Learning Materials: Experimental Project: Farmers Functional Literacy Programme.
INSTITUTION Ministry of Education and Social Welfare, New Delhi (India).
PUB DATE 74
NOTE 70p.

EDRS PRICE MF-$0.76 HC-$3.32 PLUS POSTAGE
DESCRIPTORS Adult Farmer Education; *Adult Literacy; *Curriculum Development; Farmers; Foreign Countries; *Functional Illiteracy; *Indians; *Literacy Education; Program Planning
IDENTIFIERS Farmers Functional Literacy Project; Farmers Training and Functional Literacy Program; *India; Problem Oriented Education

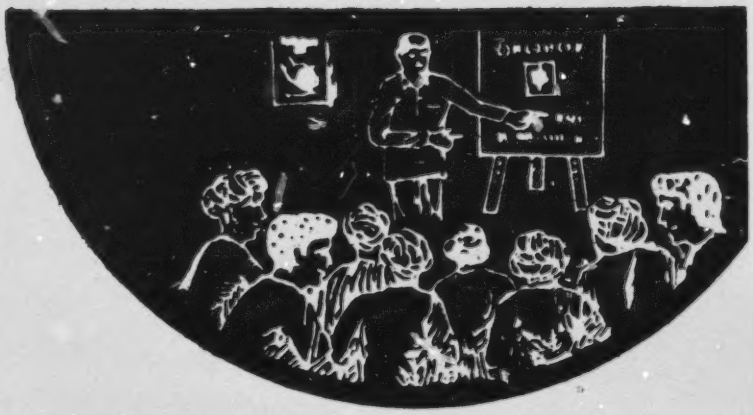
ABSTRACT

Using practical problems faced by farmers developing new agricultural methods, a problem-oriented approach to adult functional literacy was developed and tested in the Jaipur district. The booklet explains the first two of the project's five phases: exploration, syllabus and curriculum construction, materials preparation, action, and evaluation. The exploratory phase investigated the problems and needs of the farmers; the booklet explains the nature of the survey team, survey procedures, the findings of the survey, the findings of a linguistic survey, and the identification of the most common and most crucial of the problems. For the second phase, the booklet lists the remedial measures adopted and provides some necessary background information on specific farming practices. The individual units of the syllabus are listed and coordinated with the agricultural calendar. Appendixes reproduce some of the survey tools, a word list (in Hindi), and the agricultural calendar. (PR)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED109456

MAY 05 1975



U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

FARMERS FUNCTIONAL LITERACY PROGRAMME

PREPARATION OF PROBLEM ORIENTED LEARNING MATERIALS

EXPERIMENTAL PROJECT

IN JAIPUR DISTRICT

CE004307

DIRECTORATE OF ADULT EDUCATION
MINISTRY OF EDUCATION AND SOCIAL WELFARE
GOVERNMENT OF INDIA
NEW DELHI

1974

Experimental Project Series-2

Problem Oriented Learning Materials

An experiment in curriculum construction and materials preparation for a problem solution-oriented functional literacy programme for farmers in Jaipur District

METHODOLOGY, PROCEDURES, TECHNIQUES AND TOOLS

Directorate of Adult Education
Ministry of Education and Social Welfare
Government of India
New Delhi

3

This Report relates to the first two phases of an experiment which was conducted by a team composed of Mr. Camillo Bonanni, Shri K.B. Rege, Shri R.S. Mathur, Dr. (Mrs) S.K. Agarwal, Shri L.C. Vohra from the Directorate of Adult Educatinn; Dr. M.G. Chaturvedi from NCERT; Dr. R.P. Singh from IARI; Shri R.S. Singh and Shri K.S Mathur, research associates and with the cooperation of Shri M.C. Bhargava and Shri L.D. Maheshwari of the Farmers' Training Centre, Durgapura, Jaipur.

FOREWORD

Crucial to the success of the Functional Literacy Programme are the teaching and learning materials which constitute the medium through which new concepts, contents and methodologies are introduced.

In the Farmers' Functional Literacy Project these materials were initially developed around a package of agricultural practices required for the successful implementation of the High Yielding Varieties Programme. The first materials developed by the Directorate of Adult Education were constructed in this manner. However, it was soon found that such materials were not adequate by themselves either in motivating farmers or in sustaining their interest. The reason was not far to seek. In the process of adopting these new varieties, farmers came up against some problems, big and small, and they needed help in finding solutions to them. The functional literacy programme, if it had to be meaningful had to help the farmers in meeting and overcoming these problems. The accent on the materials had, therefore, to shift from *supply of information*, to an exploration of ways of *solving problems* which were baffling the farmers.

In other words, the functional literacy curricula and their respective didactic materials have to be *problem-oriented*. These will not deal with *all* agricultural, scientific and economic topics needed to be known in connection with the High Yielding Varieties and the Multiple Cropping Programmes but only with those skills, knowledge and working practices needed for neutralizing those physical and socio-cultural factors which hinder the attainment of agricultural objectives. This should, in due course, lead to a coincidence of the farmers' socio-cultural values ahd technical capabilities with the developmental targets.

A special experimental project of developing materials around these problem situations and their solutions initiated in response to this need.

The district of Jaipur in the State of Rajasthan was chosen as the base for this experiment. The project which was initiated in 1972 runs in five phases; an exploratory phase, a syllabus and curriculum construction phase, a materials preparation phase, an action phase and an evaluation phase. The first three phases have been completed and the fourth is on currently.

This booklet explains what could be called the 'ecological' or 'environmental' approach to syllabus and curriculum construction. As a matter of fact, the whole process starts with the identification of problems faced by farmers in

adopting new agricultural practices for the cultivation of High Yielding Varieties of Crops, as the basis for syllabus and curriculum preparation. We hope that inspired by this presentation of the experiment, other programme organisers in the field of adult literacy and adult education would accept the same methodology of curriculum preparation, adapting it to the various local requirements.

The next booklet in the same series describes the elaboration of learning-teaching materials and their implementation.[1] The materials developed so far consist of : a first book,[2] and a set of ten charts[3]. Adaptation and diversification of materials, methods and techniques in response to local needs is the life-breath of the functional literacy programme, as well as of other adult education undertakings. We would, therefore, measure the success of these efforts by the variety of new experiments that are generated in developing new learning-teaching materials.

Already in the Jaipur District, thirty centres have been selected for the try-out of these materials, the concerned teachers have been given intensive training in their use; and preliminary surveys, interviews and data collection have been completed prior to the introduction of the materials. We are waiting for the first results to come out.

The first three phases of this experimental project were planned, formulated and initiated by a team of specialists under the guidance of Mr. Camillo Bonanni, UNESCO Expert in Materials Preparation, assigned at the time to the Directorate of Adult Education. The present publication has been compiled and edited by Mr. Asher Deleon, UNESCO Adviser to the Ministry of Education & Social Welfare, out of the reports and data emerging from that experience. To all of them and to the many individuals in the field who cooperated to make this project possible, the Directorate would like to place on record its appreciation and gratitude.

(Mrs.) S. Doraiswami
Director
Directorate of Adult Education

New Delhi
October 1974

---

1 See the *Teacher's Guide* for the use of the *First Book* for the Experimental Project on Jaipur District.

2 See, *Prayogatmak Pustak—Bhaag I*, Directorate of Adult Education, May, 1974.

3 *Charts* published by the Directorate of Adult Education, May, 1974.

CONTENTS

Foreword i–ii
Introduction v–vi

I PROJECT DESIGN : FIVE PHASES

From Problem Identification to Evaluation

Exploratory Phase (2)
Syllabus Construction Phase (2)
Learning and Teaching Materials : Preparation Phase (4)

II THE FIRST PHASE. EXPLORATORY : THE PROBLEM SURVEY

From Survey Plan to Problem Identification

The Survey Team (9)
Survey Procedures (11)
Facts and Findings (13)

How the Survey was conducted – Diagnosis of the Situation – Findings of Linguistic Survey – Selection of Problems – Interpretation

III THE SECOND PHASE. SYLLABUS AND CURRICULUM CONSTRUCTION

From Identified Problems to Functional Literacy Syllabus

Reformulation of Socio-technical Problems and Measures (21)
Identified Remedial Measures (21)
Practices for Hybrid Bajra (22)
Application of Nitrogen, Phosphorous and Potash (24)
Wind Erosion Control (25)
Farmyard Manure and Compost (26)
Mixed Cropping and Crop Rotation (29)
Control Measures for White Grub (30)
Sequential organisation of syllabus (31)

APPENDICES

Appendix I—Tools (39)
Appendix II—Word List (56)
Appendix III—Year Round Agricultural Calendar (65)

INTRODUCTION

The National Workshop on Functional Literacy, organised in New Delhi in January, 1971, discussed, among other things, the principles of curriculum construction in relation to the materials required for functional literacy and made the following recommendations :

> 'Curriculum Construction Principles : The curriculum should be problem-centred so as to deal with the obstacles in the way of achieving the objectives of the programme. The actual problems of the learner should be first identified through a suitable survey with the help of agricultural extension personnel. Based on these problems the curriculum for that particular area should be developed. Each problem will become an element in the construction of the curriculum. The survey would bring out the elements already known to the farmers and what remains to be given through functional literacy.'

A second National Workshop on the Production of Reading Materials for Neo-literates, which followed in April 1971, considered various aspects of materials preparation in further detail. It endorsed the recommendations of the earlier Workshop and made the following specific recommendations :

> 'Regarding curriculum for Functional Literacy programmes, a problem-oriented curriculum should form the basis for the preparation of instructional and the reading materials. It should be drawn up on the basis of the kind of knowledge and skills which should be transferred to the readers so that the technology and the scientific knowledge are passed on to them.'

Both the workshops emphasised the need for a problem survey prior to curriculum construction.

The National Workshop on Production of Reading Materials for Neo-Literates further recommended that since this was a highly demanding approach, it may be tried out, on an experimental basis, in a few districts. The relevant recommendation is given below :

> 'Regarding preparation of literacy (teaching) materials aimed at raising the technical skills and the productivity of the farmers in the High Yielding

Varieties Programme, the Workshop accepted the scheme for the preparation of problem-centred teaching materials for functional literacy, with special emphasis on (i) the formulation of teams for preparing them, and (ii) the evaluation and testing of such materials prior to their use on a wider scale. The Workshop felt that this though a highly demanding scheme, was a new, systematic and scientific approach to the preparation of Functional Literacy materials.

'As it was a new approach, the Workshop recommended that the scheme might be tried in the beginning as an experiment at two or three places on a pilot basis in order to find out its suitability for being multiplied in the whole country.'

To make a beginning, Jaipur district in Rajasthan was chosen for the purpose and a survey of the problems faced by the farmers growing High Yielding Varieties of crops in four Blocks of the district was undertaken.

This is the report of that experience and we hope that it will be of interest to the administrators, planners, writers and others working in the field

FROM PROBLEM IDENTIFICATION

TO EVALUATION

THE experimental project for Jaipur District was designed as a five-phases project :

(1) Exploratory Phase—consisting of a Survey to identify the actual problems faced by the farmers in adopting new high yielding varieties of seeds and the new agricultural practices required for them.

(2) Syllabus and Curriculum Construction Phase—consisting primarily of the identification of agricultural remedial measures to be adopted by the farmers for overcoming their problems as indicated by the Survey as well as the arrangement of the syllabus based on information, knowledge and skill necessary to implement these remedial measures.

(3) Learning and Teaching Materials' Preparation Phase—consisting of the preparation of first book, posters and charts, teachers' guide and supplementary readers.

(4) Action Phase—constisting an experimental implementation and use of these materials in a limited number of appropriately selected functional litera-

cy centres with the teachers and supervisors adequately trained in the use of the learning and teaching meterials ;

(5) Evaluation Phase—consisting of assessment of the suitability of this problem-oriented approach and of measurement of the socio-economic and educational impact achieved by it.

Until now, the initial three phases have been undertaken and almost completed. They have been 'designed' and elaborated in the following way :

EXPLORATORY PHASE

The first phase consisted of the following steps :

1. Identification through an opinion field-survey of the technical *problems* faced by the farmers, who are the future participants in the functional literacy courses (The word *problem* should be taken to mean : a situation in which the attainment of the agricultural target is delayed or prevented due to the lack of a particular experience, knowledge or skill, as well as to the lack of other related factors or necessary conditions).

2. Confrontation of the farmers' perceptions of the problems with the diagnoses given by the agricultural and other specialists.

3. Assessment of the real nature of the problem.

4. Classification of problems by priority and selection of those among them which are *crucial* and *common* to the target-group.

5. Recognition of the linguistic patterns-phonological, lexical, grammatical and syntactical—of the daily spoken language of the farmers, by analysing the texts of the group-interviews, which have been recorded on tape during the opinion field-survey.

SYLLABUS CONSTRUCTION PHASE

Only after the exploratory phase has been completed, can the functional literacy curriculum be elaborated. The major steps involved in the syllabus and curriculum construction phase have been ;

1. Drawing up an inventory of the remedial measures required for the solution of the problems. These measures have to be suggested by local or regional agricultural specialists, in consultation, when and if needed, with institutes of research.

2. Sequential arrangement of the remedial measures required for the solution of the problems, according to the order in which they have to be implemented : one specific sequence for each problem.

3. Juxtaposition of the different sequences according to the calendar of adoption of the measures included in them.

4. Interweaving of the sequences in a unified chart in which the various remedial measures will be distributed according to the chronological order of their adoption and fitted into the agricultural calendar. The outcome will be a list of innovative working tasks to be added to those traditionally executed by the farmers. This list should be discussed with and accepted by them before being finally adopted as the *syllabus* of the functional literacy programme.

5. Break-up of the planned working tasks, in their primary working operations, if and when required by their complexity.

6. Inventory of skills knowledge and *socio-economic information* needed by the farmers for implementing each one of the working tasks or operations in a conscious and autonomous manner.

7. Organisation of a 'corpus' of skills, knowledge and socio-economic information needed for the implementation of each working task or operation, into separate instructional units.

The entire set of instructional units required for the solution of the crucial and common problem faced by the farmers participating in the programme will constitute the *functional literacy curriculum*. The curriculum, therefore, will not be a compendium of generic topics selected according to the judgement of professional educators or pedagogists, but an itinerary for a journey towards the solution of practical problems and achievement of definite targets. A curriculum *not knowledge-oriented*, but *wealth-oriented*, if we use word *wealth*

to convey the meaning that Buckminster Fuller has given to it, namely 'energy compounded with intellectual know-how.'*

LEARNING AND TEACHING MATERIALS : PREPARATION PHASE

The transfer to the farmers of the selected contents can be achieved *de facto* by the mediation of three communication systems : (i) the spoken language ; (ii) the visual non-verbal language ; i.e. static or cinematic images, illustrations, graphs, drawings, etc. ; and (iii) the written verbal language.

We are mainly concerned with the third one, because the written communication system is the only one which opens to them the opportunity for a constant improvement of their conditions of life. This means the following process :

1. A simple written, verbal and numerical 'progression', has been prepared, clearly conveying the content of each instructional, unit. The strutures of these progressions have to be carefully designed, by grading in a balanced and harmonious way, the logical patterns of the farmers' language, identified in the exploratory phase, and the innovative syntactical terms required by the technicality of an advanced agriculfural language, These progressions are also accompanied by visual non-verbal supports such as posters, maps, working plans, diagrams and graphs. All together they constitute the *Functional Literacy Materials*, which will be utilised for the implementation of the programme. To prepare these materials an inter-disciplinary team is required, composed of an agriculturist, an educationist, a pedagogist, a linguist and an illustrator**

2. The consumers of a functional literacy programme being illiterate farmers, it is clear that, in the beginning, they will be unable to decode the messages conveyed by the materials. For this reason the contents of the first instructional units have to be transferred to them by the instructors : orally or with the help of demonstrations. The instructors will also introduce to the

---

* These two initial phases ('Exploratory' phase and 'Syllabus construction phase') are elaborated in this volume. The next phase (concerning the curriculum and materials preparation) is explained in the next volume *'The Teachers' Guide'*.

** See the Primer *Kisan Saksharata Yojana—Prayogatmak Pustak Bhaag I*. Directorate of Adult Education, 1974.

farmers short written phrases and written arithmetical expressions, taken from the already established, verbal and numerical progressions. Simultaneously, these phrases and arithmetical expressions will be analysed into their basic units : words, syllables, letters, numbers or digits as the case may be. These basic units, once *fixed* in the minds of the learners, will be utilized for building new words and phrases, or new numbers and arithmetical expressions. This two-way process, progressively developed, will lead the farmers towards the mastery of the reading writing and written calculation mechanisms, and will enable them, eventually, to directly utilize the materials.

3. A collection of worksheet and handout sheets containing progressive exercises for the development of reading, writing and calculation skills has to be prepared by the pedagogist. Each instructional unit has to be accompanied by a set of exercises, strictly related to the verbal and arithmetical expressions of the unit.

4 A Teachers' Guide has also been prepared by the pedagogist.* It contains : a clarification of the objective of each instructional unit, introduction to its contents, suggestions about the most effective method of presentation, orientation for an appropriate utilization of the exercise sheets and of the supporting aids, and finally, indications of the estimated time requirements.

5. Tests, questionnaires, interview schedules, observation guides, etc, have to be prepared by the pedagogist, in consultation with a psychologist, in order to evaluate the validity of the contents and the adequacy of the materials of each instructional unit, as reflected in the rate of learning. This is to help in remedying deficiencies noticed. First tests and questionnaires have already been prepared.**

---

* See *'Teachers' Guide*, Directorate of Adult Education, New Delhi, 1974.

** *Ibid.*, Part III : Evaluation at the end of Units 4 and 10, Postscript : General Assesment of the Programme.

II

THE FIRST PHASE

EXPLORATORY : THE PROBLEM SURVEY

FROM SURVEY PLAN

TO PROBLEM IDENTIFICATION

THE SURVEY TEAM

IN order to identify the specific problems of a chosen district, it was necessary to have a team, consisting of an agricultural extensionist, a rural sociologist and a linguist.

(a) The team's main responsibilities were to conduct a quick survey on :

— the crucial problems faced by the farmers in the H.Y.V. programme;

— the remedial measures suggested by the agricultural local specialists;

— the farmers' consciousness of the problems and their capacity to take action on the suggested remedial measures.

(b) The survey was carried out in districts/blocks in which functional literary centres were to be established.

(c) The data/information were collected by interviewing, both in groups and individually, agricultural and educational specialists, associated

with the H.Y.V. programme in the locality (such as B.D.O.'s, V.L.W.'s and the staff of the Farmers' Training Centres), and farmers

(d) This survey was expected to yield :

— The list of problems in order of priority;

— A detailed inventory of the practical measures as proposed by the competent agricultural technicians for the solution of each of the identified problems;

— Identification of the physical, technical, socio-cultural and linguistic factors (primary only), which accelerate or retard the implementation of these measures.

The team had also to collect statistical data on farmer's population, together with information on their most relevant socio-economic characteristics. (Much of these data would be available in the Block office).

The tasks of the **Agricultural** worker were :

(a) The identification of factors which tend to accelerate or retard the adoption of the H.Y. Varieties e.g.,

— *physical ;* climate, soil, water, roads,

— *structural ;* farm holding, tenancy, management, population to land ratio land ceiling.

— *technical ;* value of the existing working techniques and adequacy of traditional tools.

— *financial ;* management, incentive, credit, insurance, interests, other subsidies.

— *economic ;* patterns of production, consumption, pricing and marketing

(b) A detailed inventory of the agricultural operations to be implemented by the farmers for the solution of each of the identified problem.

The **Sociologist** was primarily concerned with the identification of the socio-psychological and socio-cultural factors (traditional structures, beliefs, habits, attitudes, behaviour) accelerating or retarding the adoption of the inno-

vative technical processes demanded of the farmers for achieving the objectives of the High Yieiding Varieties Programme. His responsibilities also included the collection of data on :

—Peasants, castes, family characteristics, migration trends, professional mobility, housing facilities, health and hygiene both individual and environmental and diet

—Peasants' educational levels and needs ; existing educational, training and extension facilities at the village and district level.

The Lingust had to find out the convergences and divergences of the technical language spoken in the problem-areas and those of the adults' spoken language. This investigation would provide a list of the expressional and structural characteristics of the adults' thinking and lanquage. This would help, in developing the right set of criteria to be followed in preparing the language progressions of the problem-oriented materials.

SURVEY PROCEDURES

The foilowing steps were taken in conducting the survey :

(a) The team began with the elaboration of basic tools, tests, questionnaires, proformas for interviews etc.* to be used (i) in investigating the situation in the area where the programme would be implemented and (ii) to establish a comprehensive inventory of all the problems encountered by the farmers living and working in the four selected Blocks. In order to establish this inventory, the Agricultural and the Rural Sociologist interviewed officers and specialists at the District and Block headquarters. Then three villages were chosen at random in which functional literacy centres have been, or will be set up. In these villages, groups and individual farmers were interviewed. After 20 days of field-work the team could finalise a list of problems for each Block.

(b) Specialists officers, and farmers some times gave different interpretations of the same problem; therefore, after their own analys is consultted some of them again in order to reach a better definition of the real nature of the problem.

* See Appendix I- Tools.'

(c) The team then selected, among all the identified problems, only those which could be solved by the *educational process*, i.e. by imparting literacy skills and knowledge to the farmers.

(d) Among all the problems educationally solvable, listed blockwise, the team again selected those which were common to all the four Blocks.

(e) These problems were then arranged in order of priority, in accordance to their cruciality and urgency.

(f) The list of the identified common, crucial problems, was presented to the educational and agricultural specialists of the district, for their comments and reactions,

(g) following this, the agricultural specialists and officers in the district were requested to provide detailed list of remedial measures to be carried out by farmers for solving the selected problems, together with the calender for their adoption.

(h) Finally, the Linguist, in cooperation with the Agricultural expert established a list of lexical, grammatical and syntactical Hindi terms as demanded by the technical language of the problem-areas under consideration, to be matched against those used by the adult farmers in their daily spoken tongue. For this purpose he contacted three groups of farmers, each in a different village of Jhotwara Block The villages were selected by the B.D.O. Two local agriculture extensionists accompanied him. Their task was to cary on a discussion with the farmers on some of the topics related to the identified problem-areas and practices to be adopted for their possible solution. These discussions were recorded on tapes, and successively processed in the Language Laboratory of the N.C.E.R.T. A list of 600 local agricultural words * were established, together with an analytical description of the phonological morphological, and structural characteristics of the adults' language. These data helped the specialists in materials preparation in formulating appropriate criteria for fixing the frequency and the sequence to be given to the progression of words grammatical forms and syntactical structures in the functional literacy text.

---

* See Appendix II.

FACTS AND FINDINGS

How the survey was conducted

The survey was undertaken in the four selected Blocks of Jaipur District from 26 July to 21 August, 1971. These Blocks were Jhotwara, Amber, Shahapura and Sanganer, i e. the four Blocks in which the Farmers Functional Literacy Programme would be developed. The survey was conducted by the rural sociologist, the agricultural extensionist and the linguist. The data/information on the problems faced by the farmers while cultivating HYV, were collected by interviewing, both in groups and individually, farmers involved in HYV Scheme, Village Level Workers, National Demonstration Specialists and Adult Education University Professors, Agricultural and Educational District Officers, Farmers Training Centre Staff and other officers at the block and village levels associated with the HYVP of Jaipur. Twelve village were visited.

Diagnosis of the situation

Some of the major findings of the interviews are indicated below :

(a) The majority of the illiterate or semiliterate farmers are small land-owners. They possess, on an average, 5 to 6 acres of land mostly suitable for dry farming.

(b) They are involved only partially in the cultivation of H.Y.V. Preferably they cultivate Mexican wheat, but the majority of them are not inclined to cultivate only hybrid bajra. The new variety is always cultivated by them along with local varieties.

(c) They cultivate wheat during rabi season and bajra during kharif season. There is no precise rotational scheme adopted by them for 'zaid' or summer crops.

(d) When they cultivate new varieties, their yield per acre is far inferior to the optimum.

(e) The majority of the illiterate small farmers do not seem to have frequent contacts with government services.

(f) The *Farm and Home Unit* broadcasts technical information, three times a day, totalling 50 minutes; illiterate farmers follow them with

interest when they are in the functional literacy centres or charcha mandals, but they report that the reception is not very satisfactory. This is presumably due to technical reasons, weak radio station and imperfect radio receivers.

(g) The small owners are aware of their lack of technical knowledge and express their willingness to learn.

(h) They are aware of the limitations caused by their illiteracy and inadequacy in mental calculation particularly for marketing purposes.

(i) They are ready to adopt H.Y.V. if they are assured of the availability of the right inputs on time.

(j) No resistance to H.Y.V. due to socio-cultural factors has been indicated by their statements.

(k) Many farmers have expressed the wish to learn standard Hindi.

Findings of the Linguistic Survey*

Rajasthan's Linguistic Characteristics. The language spoken in and around Jaipur is called Jaipuri or Dhundhari, a dialect of Rajasthani, the literary language of Rajasthan. Since Hindi is the State official language, all the languages and dialects spoken in Rajasthan are generally considered to be dialects of Hindi, and they are neither taught nor learnt in schools, nor are they used in public life generally. In Jaipur city, and other urban areas of the region, Hindi is the lingua franca for all the educated people. It is also easily understood and spoken by the rural people when conversing with those who cannot speak their dialect.

The term Rajasthani generally means the old literary language of Rajasthan, called Dhingal. It is also a collective name for all the linguistic forms spoken in the State of Rajasthan.

Jaipuri may be considered a major language of Rajasthan, the original name of which is Dhundhari. Jaipuri as spoken in Jaipur is considered to be the standard form and has the following regional dialects : (a) Torawati ; (b) Kathaira ; (c) Chaurasi ; (d) Nagarchal ; and (e) Rajawati.

* This text (pages 14-16) was by Dr. G. Chaturvedi (NCERT, New Delhi)

Some of the linguistic peculiarities of Jaipuri as contrasted with standard Hindi have been noted down below :

Phonology :

Jaipuri has the following phonemes :

Vowels : /i ; I, e : a. ; o ; U, u/

Consonants : /P, ph, b, bh, t, th, d, dh, ṭ, ṭh, ḍ, ḍh, c, ch, j, jh, k, kh, g, gh, m, mh, n, nh, n, y, l, lh, l, r, rh, r, rh, s, v, y, h /

Comparing the phonemes of Jaipuri with those of Hindi, it is seen that the inventories of segmental phonemes of Hindi and Jaipuri are almost identical but for a few exceptions which are explained below ; these will be the problem spots :

Comparatively, standard Hindi has more consonant-clusters than Jaipuri. Hindi consonant-clusters are not only more frequent but have a greater viriety than usually possible in Jaipuri. Hindi has consonant-clusters of two types :

I. c/+y, r l v =(Kya
(Kram
(klos
(Kvara

II. S/s+c =Sthan
Sri

Jaipuri has only a few in type I. and type II is completely absent. These clusters are simplified by an I/, onglide before/after c or /s/s, hence ;

/Pr bhat/—/P rbhat)
/Sthan/—Isthan/
/sri/s l ri/.

Medially and finally also Hindi has consonant-cluster as well as consonant sequences of two and more consonants, while Jaipuri does not tolerate so many of them. Therefore, certain types of consonant clusters of Hindi in medial and final positions are simplified by Jaipur speakers.

Vocabulary : Hindi aud Jaipuri have a large common vocabulary. A list of 600 local words used in discussions on agricultural and rural to subjects was carefully identified.

Grammar and Syntax : At the grammatical and syntactical levels, Hindi and Jaipuri are very close to each other. Various grammatical categories and their relationships in Jaipuri and Hindi are almost identical, as well syntactical structures. Even the genders of words are similar in both languages.

The linguistic survey brought out the conclusion that neither grammatical nor syntactical divergences exist between the structure of standard Hindi and that of the local language. The phonological and morphological differentiations which were noticed were not very significant. A few lexical variations were found between the local and the standard agricultural language as shown by the basic words list.

Selection of the Problems

All these findings—from the sociological, agricultural, technical and linguistic viewpoints—were of a paramount importance for the subsequent phases.

The team next proceeded to the selection and classification of the identified problems, taking into consideration their 'commonness' and 'cruciality'.

(a) *Common primary problems :* Partial resistance to the adoption of HYV due to socio-cultural factors.

(b) *Crucial common problems :*

- Lack of control measures against white grub, which attacks the roots of new and old varieties of bajra in the kharif season.
- Total inefficiency of the cooperatives.
- Inappropriate marketing infrastructures, facilities and patterns.

(c) *Less crucial common problems :*

- Soil erosion, by wind. Sandiness of soil. Uneven topography-Water salinity and alkalinity. Zinc deficiency. Scarcity of surface water. Loss of water because of soil permeability.

- Lack of control measure against wheat smut and rust.
- Absence of a multiple cropping scheme.

(d) *Non-crucial and uncommon problems :*

- Water pumps ; defective utilisation, maintenance and repairs.
- Lack of control measures against nematodes.
- Seasonal scarcity of labour.
- Inappropriate seed-storage practices and facilities.
- Monkeys damaging crops.

Interpretation

The problem survey brought out the fact that it is the middle and big farmers who participate actively in the H Y V. programme and who are better able to reach the targets set by Government for bringing areas under the H Y V. cultivation. The small farmers are relatively less directly involved, and it is they who constitate the large section of the functional literacy audience. Their training needs would obviously be different from those of the other farmers. This distinction is not only due to their illliteracy, but also to their different level of involvement in the adoption of H.Y.V. cultivation. For this reason the Functional Literacy target for Jaipur District was formulated in the following way : *To increase the level of involvement of the small illiterate farmers in the adoption of H.Y.V. by solving the problems which have caused their partial resistance to it.*

III

THE SECOND PHASE

SYLLABUS AND CURRICULUM CONSTRUCTION

FROM IDENTIFIED PROBLEMS

TO FUNCTIONAL LITERACY SYLLABUS

REFORMULATION OF SOCIO-TECHNICAL PROBLEMS AND MEASURES

THE elaboration of the syllabus for a functional literacy programme had to based on : (a) identified problems in the determined area; (b) identified agricultural remedial measures to be implemented by the farmers. In other words, preparation of a syllabus was to be a' translation' of socio-econmic and agro-technical measures into pedagogical language.

The problems identified and diagnosed in the first phase of programme preparation (Exploratory Phase) need to be reformulated in terms of positive remedial operations and successively transformed into 'contents' and 'units' of the functional literacy syllabus.

IDENTIFIED REMEDIAL MEASURES

Broadly formulated, the remedial measures should focus on the solution of the following problems :

Improvement of the soil and watering conditions.

Detection and control of white grub.

Multiple cropping scheme inter-culture as third crop — what, when and how?

Revitalisation of the cooperative : nature of cooperative, ownership, rights and duties of cooperators.

From the technical and operational point of view, remedial measures, to be efficient will have to be built on a sound knowledge of farming practices and agricultural techniques.*

PRACTICES FOR HYBRID BAJRA

Soil Preparation

Two ploughings, including one with a soil turning plough with the onset of monsoon, followed by planking.

Sowing

Variety	— H.B.-1, H.B.-3 and H.B.-4.
Seed rate	— 1½ to 2 kg. per acre.
Sowing time	— after the monsoon rains starts
Sowing method	— Sow in lines behind the plough
Depth of sowing	— 5 cm deep
Spacings	— Row to row 45 cm and plant to plant 15 cm (after thinning)

Manures and fertilisers

Apply 10 cartloads of formyaid manure one month before sowing and into soil. Doses of N, P_2O_5 and K_2O are based on soil test data,

For low and medium soil test data of percentage organic carbon apply 50 and 40 kg. N/acre respectively. For low and medium soil test data of available phosphorus apply 24 kg P_2O_5 per acre respectively. And for medium and high soil test data of potash, apply 12 and 8 kg. K_2 per acre respectively.

At sowing time : Apply ½ dose of nitrogen and full doses of phosphorus and potash.

---

* The text, pages 22-31, has been prepared by Dr. R.P. Singh, I.A.R.I., New Delhi

Methods of placement : Mix all the fertilizers and drill at 8 cm below the seeding zone.

Top dressing : (i) apply $\frac{1}{4}$ of dose of nitrogen after thinning (one month after sowing) (ii) apply remaining $\frac{1}{4}$ dose of nitrogen prior to emergence of ear heads (two months after sowing).

Soil Treatment

Ayply BHC 10% 15 kg or Aldrin 5% dust at 10 kg or Aldrin 2% dust at 25 kg per acre for control of termite. If there is a problem of white grubs then apply BHC 10% dust and Aldrin 5% dust each at the rate of 10 kg acre. Broadcast these insecticides and mix with soil.

Interculture

One intercultute when crop is about three to four week old. Thinning and gap filling has to be done at this stage.

Weed Control

Many types of weeds infest bajra. 2, 4—D sodium salt at 0.5 kg per acre can safely be used when the crop is about 3 to 4 weeks old. Dissolve about 650 gm of 2, 4-D sodium salt (80%) in 300 litres of water and spray uniformly. This treatment will, however, control only non-graminaceous weeds and to some extent *Striga*, and should be applied supplementary to inter-cultural operations.

Irrigation

If there is no rains irrigate after top-dressing and also at flowering stage.

Plant protection

For control of borers — spray thiodane 35% B.C. $\frac{1}{2}$ litre in 200 litre of water at 3 weeks after sowing and repeat after 3 weeks if needed taking $\frac{1}{2}$ litre insecticide.

Foliar diseases

Spray Zineb 1 kg/acre at 6-8 weeks after sowing depending upon field and weather conditions for prophylaxis against foliar diseases.

APPLICATION OF NITROGEN, PHOSPHORUS AND POTASH

Timing

Urea contains nitrogen in the form of amide. When applied, the amide is converted into nitrate. Being negatively charged, nitrogen is not absorbed by clay particles which are also negatively charged. Therefore, the nitrate nitrogen remains free and moves very fast as compared to phosphorus and potash. If there is heavy shower after applying nitrogen fertilizer, it gets lost along with the water. Therefore to increase the efficiency and utilization of nitrogenous fertilizers, it is applied in 3 splits.

Phosphorus and potash are applied in single split, particularly at the time of sowing because phosphorus and potash are not as mobile as nitrogen. To increase their efficiency they are applied in such a place from where plants can absorb them to the maximum extent. The most suitable area is the root zone which is practicable only when applied *before* or *at the time of* sowing.

Source of fertilisers

For nitrogen

(i) Urea

(ii) Diammonium phosphate 100 kg urea contains 46 kg nitrogen 100 kg Diammonium phosphate = 18 kg nitrogen and 50 kg P_2O_5

For phosphorus

(i) Diammonium phosphate

(ii) Superphosphate 100 kg superphosphate contains 16 kg P_2O_5

For potash

Potassium sulphate 100 kg potassium sulphate contains 59 kg K_2O

Time of application:

3 times

(i) At sowing time

(ii) One month after sowing

(iii) Before emergence of ear heads. (Two months after sowing)

Method of application

AT SOWING TIME : Apply $\frac{1}{2}$ dose of nitrogen and full dose of phosphorus and potash. Before applying mix all the fertilizers and drill 8 cm deep from the soil surface.

ONE MONTH AFTER SOWING : Thin the plants where the space between plant to plant is less than 15 cm and refill where the space between plant to plant is more than 15 cm. After thinning and filling apply $\frac{1}{2}$ dose of nitrogen by broadcasting method.

WIND EROSION CONTROL

Summer Ploughing

Since wind erosion is influenced to a large extent by the size and density of aggregates, an effective method of conditioning the soil against wind erosion is by adopting practices that produce nonerosive aggregates or large clods. During the summer months, when the fields remain fallow, summer ploughing can help in controlling wind erosion to some extent. The degree of control will depend upon the size of the clods. For optimum resistance to wind erosion, fields should not be ploughed more than once because repeated ploughing will reduce soil aggregates and will pulverize them.

Shelter belt

A shelter belt consists of shrubs and trees, and is intended for the conservation of soil and moisture and for the protection of field crops. It is not only valuable for wind erosion control, it saves fuel, increases live stock gains, reduces evaporation, prevents firing of crops from hot winds. In establishing the direction of shelter belts, records of wind direction and velocity, particularly during vulnerable seasons, should be considered, and the barrier should be oriented as nearly as possible at right angles to the prevailing direction of winds. The idea behind the establishment of the shelter belt, is to decrease the velocity of wind.

Varieties

(i) Anjana ; (ii) Gramma ; (iii) Mung ; (iv) Karil ; (v) Madar : (vi) Neem ; (vii) Eucalyptus ; (viii) Sisam ; (ix) Tecoma : (x) Bilayati Babul : (xi) Sadabahar

Proper Location

(i) It should be prepared at right angles to the direction of the wind.

(ii) Trees should be planted not less than 100 feet away from the nearest building.

(iii) Shelter belts should be along the permanent border of fields.

FARMYARD MANURE AND COMPOST

Use of farm yard manure and compost

UNIRRIGATED CONDITIONS

—Add 20 cartloads of farmyard manure or compost to the field at the time of monsoon arrival.

—Broadcast uniformly throughout the field.

—Mix it in the soil with the help of the plough.

IRRIGATED CONDITIONS

—Add 20 cartloads of farmyard manure or compost to the field one month before the sowing of the crop. For bajra, it should be applied in the last week or June or the first week of July.

—Broadcast it uniformly throughout the field.

—Irrigate the field.

—Mix the manure into soil with the help of plough.

Functions of farmyard manure, compost and green manure

In addition to controlling erosion, organic manures serve other purposes also. For example :

(i) Coarse organic matter on the surface reduces the impact of the rain and permits clear water to seep gently into the soil ; erosion is reduced, and more water is available for plant growth.

(ii) The addition of easiy decomposable organic residue causes the formation of complex organic substances which bind soil particles into structural units called aggregates. These aggregates help to maintain a loose, open,

granular condition. Water is then able to enter and percolate more readily downward through the soil. The granular condition of soil maintains favourable conditions for aeration and permeablity.

(iii) The roots of plants need a continuous supply or oxgen in order to respire and grow. Large pores make it easy for the soil to absorb oxygen from the atmosphere and to expel carbon dioxide. Live roots decay and provide channels down through which new plant roots grow more luxuriantly. The same root channels are effective in transmitting water downward, a part of which is stored for future use by plants.

(iv) The water holding capacity is increased by organic matter, and also increases the amount of available water.

(v) Organic matter serves as a reservoir of chemical elements that are essential for plant growth. Upon decomposition, organic matter supplies the nutrients needed for growing plants. When environmental conditions are favourable for rapid plant growth, the same conditions favour a rapid release of nutrients from the organic matter.

(vi) Fresh organic matter supplies food for such soil life as earthworms, ants, and rodents. These animals burrow in the soil and construct extensive channels which help to loosen the soil and to improve drainage and aeration. It also permits plant roots to obtain oxygen and to release carbon dioxide as they grow. Earthworms can flourish only in soils that are well provided with organic matter.

(vii) Surface mulches lower soil temperatures in the summer and raise them in the winter.

Preparation of Compost

Compost is prepared from a variety of refuse materials available on farms, in village surroundings or in urban areas. Farm compost can be made from straw, sugarcane refuse, chaff, rice hulls, forest litter, weeds, leaves and miscellaneous crop residues. The straw meterial for making compost could first be used as a bedding for cattle to conserve urine. The steps in preparing compost are described below.

- Prepare a pit of 3½ m long, 2 m broad and 1 m deep.
- Early in the morning, collect the straw which is used for cattle's bedding and put it into the pit.
- Add a layer of plant residue in the pit and about 30 cm deep.
- Moisten this layer with a slurry of cowdung and water, a suspension of water and previously prepared compost, or water and earth.
- Form a second layer 30 cm deep of the mixed refuse and again moisten this layer with slurry.
- Repeat the operations until the heap rises to a height of about 1½ feet above ground level.
- Cover the top with a thin layer of moist earth.

Preservation of Farm-yard manure

Follow these steps for preserving farmyard manure :

- Prepare a trench 3½ m long, 2 m broad and 1 m deep.
- Whatever dry litter and farm refuse you have, mix with earth and spread under each animal in the evening for absorption of urine. The rate of soil for each animal should be about 2½ kg.
- The litter should be localized in the areas where urine generally drops and soaks into the ground.
- The urine-soaked litter and dung should be well mixed and taken to the manure trench.

Begin with one end of the trench — about 1 m long for filling with the daily collections of refuse. When the section is filled to a height of 45 to 60 cm above ground level, plaster the top surface with cowdung, earth slurry, and proceed to fill the next 1 m sector.

When the trench is completely filled, prepare a second trench and fill in a similar manner. In about 3 months, the manure is ready for use.

Green Manuring

The purpose of green manuring is to increase the organic matter, decrease soil laxness, increase availability of nutrients, decrease soil

losses through erosion, and increase the water holding capacity of the soil. The last mentioned advantage is particulary significant. As organic matter content increases the water holding capacity of the soil also increases because organic matter has higher absorptive capacity. Permeablity of the soil decreases and less water is allowed to percolate beyond the roots.

Stubble mulching

(a) Harvest the bajra crop after leaving 45 cm stem from ground level.

(b) Leave it till the next operation or till monsoon starts.

(c) As soon as monsoon starts or when you want to level the field, remove from the base with the help of a sickle. This stalk can be utilised for fodder purposes.

MIXED CROPPING AND CROP ROTATION

(a) This cropping is very advantageous when you are fully dependent on nature, and particularly when there is no rain after September. Therefore, along with bajra, sow crops like arhar, mung and urd.

(b) Mixed cropping has the advantage of

- decreasing soil erosion
- insuring against crop failure
- increasing the fertility of the soil
- increasing yield per acre
- decreasing the elfect of insects, pest and diseases.

Crop Rotation

Proper crop-rotation not only controls soil erosion but also improves the physical and chemical properties of the soil.

The following crop rotations should be followed :

- Green manure—bajra—wheat
- Mung—bajra—wheat
- Mung—bajra—potato—wheat

CONTROL MEASURES FOR WHITE GRUB

Application of Pesticides

Chemicals used	*Source*
Phorate 10% (Thimati)	Cyanamide Company
Disulphatone 5.1 (Dysystone)	Bayer Company
Thiodemaon 5% (Solibirex)	Sandoz Company
Rate of application :	2.5 kg/ha actual ingredient
Time of application :	At the time of sowing

Method of application :

- With the help of plough, open the furrow 10 cm in deep and put any of the above pesticides
- Give light pata to cover it
- Open the furrow again with the help of the plough, to about two inches deep, and sow the bajra seeds.
- Cover the seeds with the help of pata.

[*Note :* This operation at two depths, the pesticides at 10 cm depth and seeds at 5 cm depth could be facilitated by the use of two tubes attached to the plough—the deeper tube for the pesticide and the shelter one for the seeds.]

Depth of application : Whatever the methods, the pesticide should not be placed 10 cm deeper than the sown seeds.

Rate : If the concentration of insecticides is 10%, then then the rate will be 25 kg/ha and if the concentation is 5% then the rate will be 12.5 kg/ha.

Storage capacity : It can be stored for an indefinite period.

All these, and many other similar information and explanations about remedial agricultural measures had to be collected before they could be trans-

formed into educational units. Needless to say, the book prepared for the farmers' use does not contain all this information. The writers of the educational units had the task of bringing the remedial measures closer to the learners andheir level of understanding and knowledge, as well as to include the agricultural remedial measures as a way of acquiring literacy skills.*

SEQUENTIAL ORGANISATION OF SYLLABUS

The foregoing tasks being executed, all preliminary operations have been completed for the elaboration of the syllabus for the functional literacy programme.

The syllabus, composed of 25 main subjects, was founded on the following premises :

(a) all the contents included in the syllabus should lead, in a comprehensive way, to the achievement of the main targets of the programme itself: 'to increase the level of involvement', to put emphasis on small illiterate formers, to help them to solve their problems, to promote the adoption of high yielding varieties, (see page 14);

(b) the core of each entity should be centred around an agricultural problem, task or operation;

(c) the aim of the syliabus is not only knowledge delivery, or information about working operations, but also the promotion of understanding of social and natural phenomena, development of scientific spirit, attitudinal changes, strengthening of motivation and, readiness for action;

(d) the syllabus should initiatie the learner into a logical mathematical and scientific thinking, an assimilation of new concepts and inter-relationships, and reading and writing skills, as a 'take-off' towards a permanent autonomous process of learning, information and communication, using the written word;

(e) there should be a close inter-relation between the agricultural operations and learning content in the functional literacy programme * In other words, the farming and the didactic calendar need to be interwoven, since disparity and distance in time among learning and operational practices will mitigate farmers' and farmings promotion.

---

* Compare : Unit 1—II, Primer prepared for the Experimental Project in Jaipur District.

**See Appendix III.

Thus, the implementation of the 25 basic 'units' has been envisaged in the following chronological sequence.

Time	Unit No.	Title
April	1	How to test the soil
	2	How are the first ploughing and the planking to be made
	3	Which, among the hybrid seed varieties, are the most suitable for your field?
May	4	How to build a shelter belt for breaking the winds and overcoming the negative effects of erosion
	5	How to introduce green manure crop cultivation (mung)
	6	Working techniques for making contour bunding
June	7	How to apply farmyard manure
	8	How to detect white grub
July	9	How the second deep ploughing and the planking have to be mede and how to apply for the first time. N, P_2O_5, K_2O, and in what doses
	10	How to control white grub
	11	How to sow hybrid seeds
	12	How to apply for a second time, N, P_2O_5, K_2O, and in what doses
August	13	How to irrigate after the second application of chemical fertilizers
	14	How to thin
	15	How to control weeds
	16	How to apply, for the third time N, P_2O_5, K_2O, and in what doses

September	17	How to irrigate after the third application of chemical fertilisers
	18	How to utilize mulches to protect the field
	19	How to market your produce (storage)
October	20	How to market your produce (transportation)
	21	How to market your produce (inputs-costs)
	22	How ro market your produce (pricing)
	23	How to market your produce (outputs)
Units to be implemented successively	24	How to establish an integrated calendar of adoption including all the new practices and distributing them by months and weeks
	25	How to prepare a farm plan

In other words, this means that, unlike traditional literacy programmes, syllabus usually follows the school year pattern—there should be, in a programme, such as the problem-oriented one for Jaipur District a close coordination between the farming calendar and the educational calendar (see the comparative table – page 34). This would certainly represent an important improvement, both from the point of view of conceptualisation and efficiency of an integrated approach to farming problems and learning experiences.

The synchronisation of the didactic calendar with the timing of farming practices would permit a close link between learning and practical work. Theory and practice should go together; reading and writing skills should go together with the practical implementation of operations the learners read about and get the educational message in a written form. Such a reciprocal correlation is meant to support and strengthen both the aspects of the programme.

In reality, in preparing and planning this programme, we have a practical example of an 'ecological approach' to the elaboration of educational activities. The 'milieu' and the environmental elements are becoming more important than abstract, general objectives.

The need is now being increasingly recognised for such a basic modification in planning and organising adult education and adult literacy programmes taking into close consideration the 'milieu' or the 'context' in various places and in many different occasions.

COMPARATIVE TABLE OF THE AGRICULTURAL AND THE DIDACTIC CALENDAR

Months	Agricultural seasons	Package of practices for hybrid bajra cultivation in Jaipur District	New practices to be implemented for overcoming the problems faced by the farmers while cultivating hybrid bajra in Jaipur	Units	Didactic Calendar Duration	Adoption Time From	To
			Soil conservation	Third White Crop Grub Control			
1	2	3	4	5	6	7	
April	End of Rabi		Soil test	1	15 days	(to be fixed in consultation with the competent State authorities)	
May	Starting of Kharif	First : Ploughing + planking, hybird seeds provision	Shelter belt mung green manuring contour bunding	2,3,4, 5 & 6	6 working days per unit		
June	Dry	Application of farmyard manure	Green manuring Detection control turning over	7-8	-do-		

1	2	3	4	5	6	7
July	Monsoon Rain	Second : Ploughing with turning plough planking : First application of N, P_2O_5, K_2O seeds treatment sowing in line behind the ploug.	Detection control	9.10 & 11	-do-	
August		Second : application of N, P_2O_5, K_2O + irrigation, thinning and weed control	Control	12,13,14 & 15		
September	Spikes emergence	Third : application of N, P_2O_5, K_2O + Irrigation	Control	16,17	-do-	
October	End of Kharif	Marketing processes	Stubble mulching	18,19,20, 21,22.23	-do-	
Novemper			Potatoes		-do-	
December				24,25	-do-	

Total units : 25
Total working days : c. 160
c. 26-Calender weeks
c. 7-Calendar months

'It is first of all the geographical *milieu*, i.e. the combination of national factors which set the lines of economic and social development.

It is above all the human *milieu* with its demographic characteristics and its sociological, psychological and cultural aspects; in this case, the dynamic human elements (engineers, technicians, peasants, workers, educators, etc.) participating in one way or another in the development process.

It is, finally, the economic *milieu*, in which scientific-technological factors are brought into play, serving towards transformation of the context itself. Economic action and productive activities being closely tied up with individual psychologies and mentalities, a socio-economic and socio-psychological analysis of the *milieu* is obviously indispensable in every case.

—Throughout the process of translating the objectives and problems into terms of educational action, the role of the *milieu* is fundamental literacy programmes meeting actual problems and needs unless the *milieu* espouses the operation in all its aspects from inception to culmination.

—In conclusion, the *milieu's* espousal of the literacy operation constitutes a fundamental methodological pre-requisite, but it must persist throughout, from the moment of the basic survey to the literacy operation proper, so that knowledge of the environment may become increasingly fuller, and the functional literacy better and better adapted to the problems and the needs.'*

How this was worked out for the Jaipur project and particularly which has been the outcome, will be presented in booklets that will follow in the same Series.

**Practical Guide to Functional Literacy*, Unesco Paris 1973 (pages 21, 69, 71).

APPENDICES

Appendix I

TOOLS

I. GROUP INTERVIEWS ABOUT GENERAL PROBLEMS

DISTRICT... ... ...

BLOCK .. ..

DATE OF INTERVIEW .. ..

A. General information about crops and characteristics of Respondents

MAJOR H.Y.V. CROPS IN THE BLOCK (season-wise)

— Kharif .. ..

— Rabi .. ..

— Jaid... ... ...

RESPONDENTS :

— DISTRICT OFFICERS : (give names, qualifications and tasks of each member)

— Block Officers : (give names, qualifications and tasks of each member)

— Farmers : (give name of the village, general composition of group and main characteristics of its members : age range, size of land holding and level of literacy)

B. Check list of the themes to be covered during the interview

I. HEALTH PROBLEMS

(i) Epidemic diseases due to or affecting the farmer's health

II. PHYSICAL PROBLEMS

(i) Unfavourable climatic factors

— High, low humidity
— High, low temperature

(ii) Inappropriate nature of the soil

— Acid, alkaline, sandy, permeable etc.
— Deficiency of potash, calclum, sodium, zinc, etc.
— Soil erosion, by wind or by water

(iii) Inappropriate provision of water

— Insufficient, excessiae
— Scarce surface or ground water
— Saline, calcareous. etc.
— Lack of drainage system
— Lack of canal system
— Obstruction of canals

(iv) Uneven topography of the surface

(v) Natural enemies

— Insects
— Birds
— Rodents
— Monkeys

N.B. * The items included in the check list and problems mentioned under each head are only illustrative. There can be many more such problems which may be investigated by probing questions.

** The interviewer has to start a discussion with the group, introducing to it, progressively, the various themes listed in this proforma, and if any problem exists in the Block this should be recorded simultaneously along with the specifications given by the group. The same procedure is to be adopted for the problems, not covered by the check list, but existing in the Block.

III. TECHNICAL PROBLEMS

(i) Faulty technical practices

— In weed control
— In land preparation
— In treating the seeds
— In sowing—advanced, delayed, wrong
— In applying fertilizers—defective, excessive, wrong
— In water—over, under
— In ploughing—advanced, delayed
— In harvesting
— In threshing

(ii) Ineffectiveness of mechanical labour

— Absence of tractors, pumps, or other mechanical tools
— Lack of maintenance, defective maintenance
— Non-availability of spare parts
— Absence of mechanical workshops
— Farmers' lack of skill in mechanical skills.

(iii) Lack of awareness about pests attacking the new crop

(iv) Lack of consciousness about the benefit of written extension advice for a more productive working performance

IV. PHYTO-PATHOLOGICAL PROBLEMS

(i) Smut, rust and other epidemic diseases attacking grains, leaves, blossoms, plants, roots

V. SOCIO-ECONOMIC PROBLEMS

(i) Inadequate man/land unit ratio

(ii) Scarcity of labour

— because of migration
— because of small family
— because of absence of landless labourers

(iii) Obsolete working patterns

(iv) Inefficiency of the cooperative societies

VI SOCIO-CULTURAL PROBLEMS

(I) Negative attitude towards new seeds

—because of the taste
—because of their stature
—because of the colour
—because of their susceptibility
—because their flour cannot produce durable bread

(ii) Negative attitude towards new fertilizers, new insecticides and new pesticides

—because of the nature of their components
—because they are not available at the right time
—because they alter the nature of the soil
—because they alter the taste of the grains
—because they require complicated mixing, dosing and applying operations

(iii) Negative attitude towards the complexity and exigency of the innovations in cultivating practices required by the new variety

(iv) Negative attitude towards modifications in the traditional farming

—In the calender of the cultural cycle
—In the measurement system, (bighas/hectare)
—In the weighing system

(v) Negative attitude towards the continuous technical assistance needed from the Farmers Training Centre and from the Extension Service

(vi) Negative attitude towards associative work

(vii) Negative attitude towards multiple cropping

VII. LOGISTIC PROBLEMS

(i) Delayed or unphased provision of

—seeds
—fertilizers
—pesticides
—insecticides

(ii) Lack of adequate two-way-communication between Farmers Training Centre, Extension Service, Radio Farm Unit and farmers

—because of scarcity of personnel

—inaccessibility of the villages

—difficulty in gathering the farmers group

—lack of proper contact with individual farmers

—lack or misuse of the radio receivers

VIII. FINANCE ASSISTANCE PROBLEMS

(i) Inefficiency or inadequacy of the credit system from the banks

—because credits are given only to few farmers

—because of its strict mode of repayment

—because of its high interests

—because given on very short term basis

—because insufficient in term of total amount

—because of delays

—because credits are blocked, (farmers not refunding the preceding one in time)

(ii) Inefficiency or inadequacy of the credit system from cooperatives

—because of its strict mode of repayment

—because given on very short term basis

—because insufficient in term of total amount

(iii) Negative effects of the transactions done by maney lenders

—because of their very high progressive interests

(iv) Absence of Crop Insurance Schemes

(v) Non-availability of seed, fertilizers and agricultural implements and insecticides at government controlled prices

IX. COMMERCIAL AND ECONOMIC PROBLEMS

(i) Inappropriate patterns of storing

(ii) Inappropriate patterns of packing

(iii) Inappropriate patterns of weighing

(iv) Inappropriate patterns of selection and grading

(v) Inappropriate patterns of pricing

(vi) Inappropriate patterns of marketing

(vii) Inappropriate patterns of distribution

(viii) Inappropriate patterns of transportation

(ix) Inexistent road communication facilities

(x) Lack of other infrastructures

(xi) Inadequacy of the farmers mental accounting processes for marketing purposes

(xii) Interference of the mediators in the selling process

(xiii) Ignorance of the basic economic inter-relationships as e.g., yield per hectare, cost and profit per rupee invested, and inputs-outputs-benefit,

PARTICIPANT INTERVIEW SCHEDULE

District :——————Date of Interview :——————

BlocK :——————Time interview started——————

Village :——————Time interview finished——————

A. Face Data :

(i) (a) May I know your name please?——————

(b) Sex :

—Male

—Female

(ii) Approximately how old are you?

—15-24 years

—25-44 yeers

—45 years and above

(iii) What caste do you belong to?

(Specify caste below)

—upper ——————

—middle ——————

—lower ——————

—scheduled ——————

—backward ——————

—no caste ——————

—no reply ——————

(iv) What is your occupation?

— farming

— on own land

— on hired land

— as landless labourer

— secondary production

— cottage industries

— craft work

— any other, specify——————

(v) Now much land does your family have ? ———— bighas
(Family includes people who live together and share the kitchen)

Ownership of land (cultivable)	Nil	Less than1	1-3	3-5	5-7	7-10	10-15	15-20	20 and above
Land owned									
Land taken on rent									
Ladn given on hire									
Total									

(vi) I will read out to you a list of things. Please let me know which of these you possess. (The interviewer should put a tick mark against appropriate items.)

Animals	No.	Articles
— Buffalo	—	— Tractor
— Cow	—	— Truck
— Camel	—	— Bullock cart
— Sheep	—	— Motor cycle
— Any other (specify)	—	— Bicycle
		— Petromax
		— Torch
		— China/Glass ware
		— Fountain pen
		— Time piece
		— Wrist watch
		— Radio/Transistor
		— Table and chair
		— Safety razor
		— Sewing machine
		— Shoes

(vii) Could you tell approximately how much money you earn in :

—a year Rs.———

—a month Rs.———

B- EDUCATIONAL BACKGROUND

(i) Did you previously attend a school/literacy class?

— yes

— no

(ii) If yes, for how long?

weeks/months/years

(iii) (If yes for question i) The interviewer should write a brief note on the level of literacy achieved by the participant, after administering a simple literacy test viz., cards for reading tables and other simple means.

———————————

———————————

———————————

(iv) Please let us know how many members there are in your family and the educational standard achieved by them. (list all persons who live and share kitchen together and tick mark educational status of each member)

Educational level attained

Family members in relation to the respondent	Age	Illiterate	Read and write only	Below 5th stand.	5-7 stand.	8-10 stand.	11-12 yrs.	12+
1	2	3	4	5	6	7	8	9
Farmer								
Mother								
Brother (s)								
———								
———								
———								

1	2	3	4	5	6	7	8	9
Sister(s)								
Wife/husband sister(s)-in-law								
Brother(s)-in-law								
Children								
Others								

C. EDUCATION OF CHILDREN AND WOMEN

(i) How many children (above 5 years) and adult women of your family are going to school/attend adult aducatien classes ?

Children :

— Male————(No)
— Female————(No.)

Women : ————(No.)

(ii) How many children (above 5 years) and women in your family cannot read and write ?

a) Children.....(No.)

b) Women.....(No.)

(iii) Would you like to send them for getting education ?

—yes

—no

(iv) (If yes) whether

—both boys and girls

—only boys

—all adult women

—only unmarried girls

D. ATTITUDE TOWARDS ADULT EDUCATION

Certain statements are given below, please, state whether you agree, disagree or are undecided about them :

Statements	Agree	Disagree	Undecided
(i) It is below the dignity of adults to join adult literacy classes like small children.			
(ii) If a farmer wants to be wise in farming, it is better to join functional literacy classes.			
(iii) When a man has not received any education in his childhood, he cannot learn alphabet in his older age.			
(iv) Instead of wasting time in gossipping, it is better to join adult literacy classes.			
(v) Only big landholders benefit out of functional literacy classes.			
(vi) Functional literacy classes increase the general knowledge of the farmer.			

E. SOURCES OF INFORMATION

(i) Generally, what are your sources of information for agricultural information and how frequently do you contact them ?

	Frequency		
	Often	Sometime	Never
Formal sources			
—Block staff			
—Extension staff			
—Panchayat			
—Cooperative society			
—Any other (specify)			
Informal sources			
—Relatives			
—Friends			
—Neighbours			
—Any other (specify)			
Mass and Group media			
—Radio			
—Films			
—Newspapers			
—Exhibitions			
—Demonstrations			
—Tours			
—Discussion groups			
—Manuals			
—Pamphlets			
—Any other (specify)			

(ii) *Social Participation*

Are you a member/office bearer of any civic, economic or social organisation ?

Organisation	Member	Office bearer (specify)	None
a. Panchayat (gram)			
b. Panchayat samiti			
c. Charcha Mandal			
d. Radio forum			
e. Cooperative society			
f. Bhajan mandal			
g. Women's club			
h. Farmers' organisation			
i. Youth club			
j. Any other, specify			

(iii) *Radio exposure*

Which of the following facilities of listening to radio are available for you ?

—no facility is available
—a transistor set has been supplied in the class
—my neighbour has a radio to which I can listen
—I myself own a radio set
—any other (specify) . .....

How regularly do you listen to radio programmes ?

Programme	Frequency of listening			Reasons for listening
	Often	Sometimes	Never	
Recreational (songs, dramas, sports etc.)				
Educational and informative (current events, news, talks etc.)				
Women's programmes				
Farmers' programme				
Any other (specify)				

(xv) Please, state whether you got any new idea/information pertaining to agriculture from radio ?

—yes
—no

(xvi) (If yes), give detail

_____
_____

F. KNOWLEDGE OF AND EXPECTATIONS FROM LITERACY CLASSES

(i) Can you give reasons why you did not attend an adult literacy class before ?

—no class was ever held in the village
—no one asked me to attend
—I had no time
—I did not feel the need
—any other (specify).....

(ii) What would be your expectations from a literacy class if you attended one ?

(iii) Would you like any steps to be taken by the government and the teachers to ensure that your expectations from attending literacy classes are realised ?

_____
_____
_____
_____

G. LEVEL OF INFORMATION ON AGRICULTURE AND OTHER THEMES

(i) Will you please furnish the following information regarding the current year ?

Season	Crop grown (area)	Seeds used	Fertilizer used	Implements used	Insecticides & pesticides used if any	Yield per acre
Kharif						
Rabi						
Summer						

(ii) Have you heard about high yielding varieties of ?

Wheat : —yes
—no

Bajra : —yes
—no

(iii) (If yes) give names of :

HYV of Wheat	HYV of Bajra
—K-68	————
—Larma Roho	————
—S. 308	————
—S. 227	————
—Sonora 64	————
—Lal Bahadur	————
—Any other, specify	————
————	————

(iv) What are the advantages of growing high yielding varieties of wheat and bajra ?

HYV of Wheat	HYV of Bajra
—more yield	
—more disease-resistant	
—ears dense and compact with grain	
—any other (specify)———	
—don't know	

(v) What are the recommended methods of sowing ?

HYV of Wheat **HYV of Bajra**

—plough the land and level it

—mix half the nitrogenous fertilizer at the time of sowing

—sow the seeds in rows

—distance between seeds=18 cm

—depth of sowing=4.5 cm

—any other (specify)————

—don't know

(vi) Which fertilizers and how much quantity per acre is recommended for use in :

HYV of Wheat **HYV of Bajra**

—Nitrogenous fertilizers
(35-50 kg.)

—Phosphate fertilizers
(20-25 kg.)

—Potash fertilizers
(25 kg.)

—any other (specify)————

—don't know

(vii) Please name source of the common insect/pests which affect :

HYV of Wheat **HYV of Bajra**

—mehon

—dimak

—gujhiya

—rats

—any other (specify)————

—don't know

(viii) Which are the insecticides pesticides generally used to check them ?

HYV of Wheat **HYV of Bajra**

— BHC (5%)

— zinc phosphide

— any other (specify)

———————

———————

— don't know

(ix) Which crops supply green manure ?

— sanai

— dhaincha

— guar

— any other (specify)

— don't know

WORD LIST **Appendice II**

अगर	आराम	कमजोरी
अगला	इकट्ठा	कमरा,
अंग्रेजी (अंगरेजी)	इधर	करना
अंग्रेजी साथ	इंकार	कराना
अच्छा, ई, र	इंजन	कस
आजमाइन	इंतजाम	कल्यान सोना
अधिक	इलाज	कहना
अनाज	इस	कागज
अनाड़ी	इसलिए	काट देना
अनुपजाऊ	इंट	काटना
अन्दर	ऊपर	कान
अन्दान	उतरना	कान पकड़ना
अपना	उपज	काला (ल) ई, द
अय	उपजाऊ	कायम
अभी	उपाय	कायम रखना
अमीन	उलटा	काश्तकार (कास्तकार)
अरहर	ऊपर	कितना
अलग		किलो
असर	असर	किस्म (किसम)
असर होना	एक	कीड़ा
आक (अ)	एकड़	कुण्डल

आखिरी	ऐसा, ई, द	कुरेदना
आज	ओढ़ना	कूचा
आजमाना	ओरना	केन्द्र
आडी	और	कैमार
आड़त	कई	कोशिश (कोसिस)
आदमी	कच्चा	कोशिश करना
आधा	कट्टा	क्यों
आना	कपड़ा	क्योंकि
आजाना	कम	खटीक
आप	कमजोर	खड़ा
आपबीती		
खड़ा होना	ग्राम सेवक	जग
खड़ी	घण्टा	जगबीती
खड़ी फसल	घबराना	जड़
खरीब	घर	जन्म (जनम)
खसरा	घास	जमीन
खाद	घी	जमीन फाड़ना
खाना (णा)	घोड़ा	जमीन कमाना
सारा (सी)	चक्कर	जरा
खुरपी	कढ़ना	जरिया
खुराक	चतुर	जरूर
खुशी	चतुराई	जरूरी
खूब	चना (णा)	जल्दी
खूब सूरत	चपरासी	जाँच

खेत	चलना	जाट
खेती	चलना	जाड़ा
खेती बाड़ी	चला देना	जान
गजब	चाँदी	जानकारी
गट्टा	चालीस	कानना
गरीब	चालू	जाना
गंवार	चावल	जितना
गाजर	चिकना,ई	जी
गाड़ी	चिलम	(जी हरा होना)
गाय	चुनाव	जीना
गांव	चौमासा	जीमना
गांव वाला	छटी	जीरा
गिनना	छप्पर	जुलाई
गिनाना	छिड़कना	जैसा
गिरना	छेद	जोड़ना
गिरजाना	छोकरा	जोतना
	छोटा	जोर
	छोड़ना	जोरदार
घर	छोरा	जौ
मोल (ल)	छोरी	
ज्यादा	तेज	धूप
झड़ना	तेल	धूमट जमीन
झाड़	तेली	ध्यान

भुग्गी	तैयारा	न
भुग्ड	तैयारी	नई
भूठ	तो	नगाड़ा
टका	थैला (ई)	नट
टंकी	थोड़ा	नटजाना
टपकना	प्रैशर (स)	नमूना
टाट	दरजी	नम्बर
टिकटी	दर्शन	नया
टुकड़ा	दलाल	नहर
टैक्टर	दस	नहीं
टाइम (टैम)	दस्तखत	नाच
ठीक	दाना	नाम
डंडा	दिक्कत	नाराज
डाक्टर	दीमक	नाली
डाल	दीमक लगना	निकाल
डालना	दुकान	नींच
डालदेना	दुकानदार	नींम
ड़ैढ़	दूध	नैत्रजन
डोला (त्त)	दूधिया	नौ
तकिया	दूधिरा गैहूँ	पकड़ना
तनियां	दूर	पखवाड़ा
तम्बाकू	दूर करना	पक्का
तम्बू	दूसरा	पच्चीस
तरकारी	देखना	पंचायत

तरफ	देखभाल	पटकना
तरीका	देना	पटेल
तहसील	देश (स)	पड़ना
तावड़तावे	देशी (सी)	पड़ना
तिल	देशी (सी) हल	पढ़ाना
तीस		पढ़ी लिखी
पंडित	प्रधान (परधान)	गला
पतला	प्रभाती (परभाती)	बहना
पत्ता	फल	बहादुर
पत्रा	फलदार	बाजरा
पत्री	फसल	बाजा
पधारना	फाड़	बाजार
पम्प	फावड़ा	बाद
पर साल	फायदा	बान्धना
परत	फार्म	बारात
परदेसी	फासला	बार
पलंग	फिर	बारे
पलटन	फुठ	बालटी
पलटा	फुटना	बासू
पहला	फूल	बांस
पाँच	फूलना	बिकना
पांचवीं	फोकट	बिखेरना
पानी (णी)	फौज	बिजली

पानी देना	बक्सर	बिना
पीछा	बिछाना	बिलकुल
पीतल	बजाना	बीमा
पीना	बड़ा	बीच
पीली	बबनाम	बोज
पीलीपत्री	बन्द	बीड़ा
पुराना (णा)	बन्द	बीड़ि
पुछना	बनाना	बीन
पेड़	बनिया	बीस
पैंतालीस	बबुल (ल)	बुर्जुज
पैंतीस	बर्मा	बुलाना
पैदा	बरसना	बेचारा
पैदावार	बरसात	बेटा
पैसा	बाग	बेटावाला
पैंटसा	बाप	बेटी
पौधा	बराबर	
बेर	मरजाना	याद रखना
बैठना	मशीन	युरिया
बैठाना	मंहगा	रजाई
बैल	मशीनरी	रकी
बौना	महाराज	रस्सा
बोलना	माई	रहना
बोरा	माटी	रहजाना
बोरी	मात्रा	राखा

द्यालू	मानना	राखोडिया
दयाह	माफी	रात
भगवान	मामूली	राजा
भरना	मालुन	रामराम
भरदेना	मारना	रामप्यारी
भरेगा	मास्टर	रुपिया
भरोसा	मिट्टी	रेत
भाई	मिलना	रेतीली
भी	मिस्तरी	रेल
भुरभुरी	मीरा	रोक
भूमि	मोल	रोकना
भूमि-कटाव	मुड़ना	रोग
भूलचूक	मूंगफली	रोटी
भोला (ल)	मूर्ती	रोना
मकसद	मूली	लकड़ी
मक्का	मैथी	लगन
मकान	मेहनत	लगना
मंगाना	मैक्सी	लगा
मट्का	मोंट	लगाना
मण्डी	मोटर	लगा
मतलब	मीठा	लगादेना
मन	यह	लग्गा
मन्दिर	यहां	लड़ना

मरना
लिखना
लिलि
लिपना
लीली
लेकिन
लेजाना
लेना
लोग
लोभ
लोहा
यह
वहीं
विदा
विदा करना
व्यापारी
शंकर
शहर
शाम
शुभ
सकना
सगाई
सड़ा

याद
सरदार
सलाह
सहकार
सहकारी
सहारा
सही
सा, सी, से
साईकल
साड़े
साथ
साथ देना
साधन
सामने
सारी
साल
साहब
सिकुड़ना
सिकुड़जाना
सिंचाई
सिफारिश
सलाना
सीखना

लड़ाई
लाल
सूतली
सूखना
सोना
सोनारा
सोनालीका
सौंफ
सो
स्कूल
सपू
हजामत
हटाना
हटा देना
हजार
हमेशा
हरियाली
हरेक
हल
हल जोतना
हाथ
हाथि
हाल
हालत

सतह	सीधा	रिसा
सफेद	सीधा करना	हिसाब
सब	सीधी	ही
सभी	सूई	हुआ
समझ	सीमा	हुंकार
समझना	सुखाना	हैक्टर
समझाना	सुधार	है, होना
समतल	सुनना	होशियार
सरकार	सुनाना	
सरकारी	सुनार	
समिति	सूत	

YEAR ROUND AGRICULTURAL CALENDER

June	—Application of Farmyard manure
	—First ploughing
	—Procurement of hybrid Bajra Seed and different varieties
July	—Basal application of full dose P_2O_5, K_2O and half dose of N.
	—Sowing in lines
August	—Hoeing and weeding
	—Top dressing of remaining Y_2 Nitrogen fertilizer
September	—Irrigation (if there is no rain)
	—Plant protection measures (if needed)
October	—Harvesting and threshing of kharif crops
	—Land preparation for rabi
	—Procurement of high yielding rabi varieties
	—Arrangement for fertilizers and other inputs for rabi crops
November	—Storage, transportation and marketing of kharif produce
	—Pre-sowing irrigation for rabi
	— Rabi sowing in lines
	—Basal fertilizer application
	Urea Super Phosphate Murate of Potash
	66 kg. 120 kg. 25 kg.
December	—First irrigation
	—Hoeing and weeding
	—Second irrigation
	—First top dressing of fertilizer—22 kg. urea
January	—Irrigation
	—Second top dressing of fertilizer—22 kg. urea or spray of 8 kg. urea in 80 gallons of water over one acre
	—Zinaeb 1 kg. dissolved in 80 gallons of water and sprayed against rust
	—Other plant protection measures
February	—Irrigations
	—Plant protection measures if necessary Rust, smut.
March	—Irrigation
	—Control of rats
April	—Harvesting and threshing and storage of rabi crops

INTEGRATED CALENDER : NORMAL AND NEW PRACTICES

(Hybrid Bajra)

Month	Agricultural season	Package of practices	New practices		
			Soil Conservation	Third Crop	White Grub control
April	End of Rabi		Soil test		
May	Starting of Kharif	First Ploughing Planting Seed Provisions	Shelter belt Green Manuring Contour bunding	Mung	
June	D R Y	Application of Farm-yard manure	Green manuring Turning over		Detection
July	Monsoon R A I N	Second Ploughing with turning Plough and Planking First application of N P_2O_5, K_2O Seed treatment Sowing in lines behind the plough			Detection Control
August		Second application of N, P_2O_5, K_2O Irrigation, thinning and weed control			Control
September	Spikes emergence	Third application of N, P_2O_5, K_2O Irriga ion			Control
October	End of Kharil	Marketing processes	Stubble mulching		
November December				Potatos	